

REMARKS

The Examiner has rejected Claims 56-70 as being obvious over Spittle in view of Emalfarb and Holley. The Examiner states that Spittle teaches a method of determining moisture content of soil and/or seed comprising: **(Spittle discloses nothing about a method for determining moisture content of soil and/or seed, it teaches a mulch pellet that absorbs more than four times its weight in water.**

(Abstract)) placing mulch product on soil, said soil containing seed (col. 1, line 30); said color coming from a pigment and/or dye in said mulch product (natural pigment, clay, col. 1, line 57; possible addition of dye, column 2, line 40); said mulch product comprising a fiber, cellulose, clay, loam, sand, and/or a combination of same (Claims 1 and 9); said moisture content of said mulch has a relationship to said moisture content of said soil and/or seed (Col. 1, lines 9-14 and 29-37). **(Col. 1 lines 9-14 describe no such relationship. It states the functions of mulch, none of them being a relationship to moisture content of said soil and/or seed. Col. 1 lines 29-37 also do not describe any such relationship. It describes what Spittle's mulch accomplishes, again not the relation to moisture content of soil and/or seed bed).**

The Examiner has found that the following steps of determining moisture content of said soil and/or seed by color intensity of said mulch product; changing color intensity of said mulch product when moisture is removed from said mulch product; changing color intensity of said mulch product when moisture is added to said mulch product; adjusting moisture level of said soil and/or seed in response to said color

intensity of said mulch product are a combination of inherent physical properties and general knowledge of one of ordinary skill. **(Nowhere does Spittle teach or disclose that the mulch changes color when moisture is removed or added. Further, nowhere is it taught by Spittle to adjust moisture level of soil and/or seed in response to color intensity).** Dry and wet substances inherently exhibit different color intensities. **(A glass has the same color intensity wet or dry. With regards to mulches, Encap has shown to the Examiner at the previous interview mulches that do not change color intensities wet or dry. Therefore, this statement is not correct).** It is old and notoriously well-known general knowledge that one of skill in the art that seeds and plants need water for healthy development/growth and that it is known when the area around the plant, i.e., surrounding surfaces, appear dry they need water. **(Encap has amended the claims regarding the need for water for seeds which is different than the need for plants).** Spittle teaches that mulch increases the humidity of the soil. Thus, it is inherent that if the mulch is dry, the soil is going to have dry tendencies. Spittle teaches the known relationship of mulch and soil. **(Since certain mulches do not change color, wet or dry, such a mulch cannot show whether the soil has dry tendencies. Further, the color relationship between the moisture level of the mulch and surface soil is not inherent and was not taught until applicant's invention).**

Alternatively, the Examiner states that Spittle teaches a mulch containing clay, but does not specifically teach/discuss the change in color. Emalfarb teaches that it is

general knowledge to one of skill that clay is a known moisture content indicator for growing medium and that clay changes color intensity when it gets dry and wet, i.e., fades and changes (Col. 3, ln. 29-30, 58; Col. 2, ln. 10, 41-43). **(Emalfarb does not use clay in mulch, it uses clay as part of the porous material which is included in the sensor)**. Emalfarb is cited as a reference of general knowledge of one of skill to recognize that when a material changes color, e.g., darkens, water is sufficiently present and when the color is faded, additional water adjustments are necessary. **(Emalfarb teaches that certain materials darken when water is added, specifically non metallic materials such as clay)**. Emalfarb is a known teaching of utilizing inherent color changing properties of a material to identify the moisture content for healthy plant growth. **(Emalfarb relates to plant growth, not moisture for seed beds as claimed)**. It would have been obvious to modify the teachings of Spittle with Emalfarb since the modification is merely the application of a known technique to a known device ready for improvements to yield predictable results. **(As stated below in the Declaration of Michael Krysiak, this is not obvious)**.

Spittle teaches seeds, but is silent on explicitly teaching the seed consisting essentially of grass, vegetable and/or flower seed. Holley teaches it is known to select flower seeds in combination with mulch applications. It would have been obvious to modify Spittle with Holley since the modification is merely the selection of a known alternate seed variety selected for a desired aesthetic effect.

Applicant submits the Declaration of Michael Krysiak. Mr. Krysiak is the coinventor of the '076 patent application. Mr. Krysiak has reviewed the Emalfarb, Spittle, Holley and Palmer

patents as well as the Examiner's Office action. (Krysiak para.4). Mr. Krysiak is the CEO of Encap and has given various presentations relating to seed watering, erosion control, seed establishment, quality and service throughout the United States. (Krysiak Para 6-7).

Encap has revised its claims to clarify the methods set forth in the claims. The Examiner has stated that "applicant has not claimed the boundaries of the soil nor explicitly that the mulch is covering the soil." Encap has delineated the boundaries taught in Encap's claims, along with defining the claim term "mulch" to be products that are applied over seed beds. Encap believes that its amendments highlight the differences between applicant's invention and that of the cited prior art, without changing and/or compromising the unique and novel properties of Encap's claimed invention. (Krysiak Para 9).

One of Ordinary Skill in the Art of the '076 patent application is defined as one who had the following formal education, work experience and/or real world experience, at the time of the invention: Understands the relationship between a colored mulch and its ability to change color to that of the moisture levels of the surface of the soil and related seeds. Understanding the importance of water to the establishment and growth of the seeds planted at the soil surface, and understanding that consumers who apply seed do not know when and how long to water a lawn. (Krysiak Para 10). Mr. Krysiak is at least one of ordinary skill in the art. (Krysiak Para 11).

The '076 patent specification defines the term "colored" as "dye and/or pigment" (page 2, Para. 0029; page 3, Para. 0037). (Krysiak Para 12).

The '076 patent specification defines "mulch" as "products that are applied over and/or with grass seed beds to help increase seed germination and/or decrease soil

erosion, allowing seeds to become firmly established in the seeded area”. (page 1 Para 0003). (Krysiak Para 13).

The '076 patent specification defines “changes color” as “a change in color or color intensity”. (Page 4, Para 0054; page 4, lines 20-21 in Office Action dated 1/9/12). (Krysiak Para 14).

Encap's '076 patent application teaches and claims a method for watering seeds at the surface of the soil, based on the relationship between the color of the mulch product and that of the moisture at the surface of the soil where the seed has been planted. (Krysiak Para 15).

Mr. Krysiak has read the cited prior art of the Spittle patent in view of Emalfarb and Holley and does not find them to be material, nor does it render the claims of Encap's '076 application obvious. (Krysiak Para 16).

Encap's claims claim the following elements: A method of determining and/or adjusting soil surface moisture by use of a colored mulch product comprising: providing a mulch product having a distinct color recognizable by a user on a soil surface of a seed bed; changing color of said mulch product in response to moisture levels within said mulch product, whether moisture is removed from the mulch product or added to the mulch product; said color change related to moisture content of said surface of said soil and/or said seed bed; indicating to a user by said color change when to adjust moisture level of said surface of said soil and/or said seed bed. The color of the mulch has a relationship to the moisture content of the surface of the soil. (Krysiak Para 17)

It would not have been obvious to combine Spittle in view of Emalfarb to create Encap's claimed invention of the '076 application as Encap teaches a mulch product

that is applied over seed beds to help increase seed germination and/or decrease soil erosion, allowing seeds to become firmly established in the seed bed. Emalfarb teaches a two-part horticultural product within the growing medium, and a sensor having a body made up of a porous material that changes in physical appearance with a change in the amount of moisture retained by the porous material. In an operative state, the first part of the sensor body resides within the growing medium and a second part of the body remains visible to allow a user to ascertain through the appearance of the second part of the sensor the amount of moisture in the growing medium.”

(Abstract) (Krysiak Para 18).

Encap’s claims require that the mulch product is on the surface of the soil wherein the soil contains seeds. Though Spittle teaches placing mulch on soil, it would not be obvious to use Spittle in view of Emalfarb, as Emalfarb does not teach anything about seeds (i.e., the word “seed” does not appear anywhere in Emalfarb’s teachings). Rather, Emalfarb’s teaching is about caring for plants (i.e., no longer seeds) within a growing medium. One of skill in the art understands the watering needs are different for seeds and plants. (Krysiak Para 19)

It certainly would not be obvious to combine Spittle with Emalfarb as Spittle teaches, “This invention features mulching pellets for application to a ground surface”. (Col. 1 lines 44-45). Emalfarb teaches, “In an operative state, the first part of the sensor body resides **within the growing medium** and a second part of the body remains visible to allow a user to ascertain through the appearance of the second part of the sensor the amount of moisture **in the growing medium.**” (col. 2 lines 2-7). Furthermore, Emalfarb teaches, “to more accurately sense the moisture content

throughout the depth of the growing medium. (Col. 1 lines 47-48). (Krysiak Para 20)

Encap claims that the “color change is related to the moisture content of the surface of the soil and or the seed bed.” It would not have been obvious to combine Spittle in view of Emalfarb and Holley to create Encap’s claimed invention of the ‘076 application as the claimed “changing colors” is not taught in either Spittle (col. 3 lines 10-11), Holley (col. 2 line 39) and Emalfarb or any combination of same, nor is it inherent. At an interview attended by Mr. Krysiak with the Examiner, Mr. Krysiak brought mulches which were left with the Examiner which did not change color when moisture was added or removed from it. Therefore, it is not inherent. (Krysiak Para 21)

It would not have been obvious to combine Spittle in view of Emalfarb and Holley to create Encap’s claimed invention as neither Spittle nor Holley teach a color change and are surface applied materials (as described above). Emalfarb, when discussing the problems with other prior art stresses, “moisture cannot be sensed below finger depth. High heat may cause the surface moisture to evaporate while the growing medium maintains a substantial amount of moisture below the surface.” (Col. 1 lines 42-46). In a like manner to Spittle, Holley teaches application to the soil surface (Col. 1 line 37) and would not be obvious to combine with Emalfarb. Furthermore, Emalfarb teaches, “to more accurately sense the moisture content **throughout the depth of the growing medium** (col. 1, lines 47-48). (Krysiak Para 22)

It would not have been obvious to combine Spittle in view of Emalfarb and Holley to create Encap’s claimed invention as Emalfarb teaches “wicking moisture between the first and second ends” (claim 15). The teaching of Emalfarb is based on a materials

ability to “wick” moisture. (col. 3 line 30). Neither Encap, nor Spittle/Holley teach the well known art of “wicking” moisture up. (Krysiak Para 23)

It would not have been obvious to combine Spittle in view of Emalfarb and Holley to create Encap's claimed invention as Encap teaches “changing colors in response to the moisture content added to the soil”. (page 2, section 0029, lines 9-10). Spittle and Holley do not teach color change, as noted above, and Emalfarb teaches a color change in response to the moisture content that has been absorbed into the soil, as noted above. (Krysiak Para 24)

Encap claims, “indicating to a user by said color change when to adjust moisture level of said surface of said soil and/or said seed bed.” It would not have been obvious to combine Spittle in view of Emalfarb and Holley to create Encap's claimed invention as Spittle and Holley do not teach a color change indicator, and Emalfarb teaches a method to determine the amount of moisture in the **growing medium**. (Col. 2 lines 6-7). (Krysiak Para 25)

With regards to Claims 57-60, for the reasons stated above, the claims are not obvious over the prior art.

With regards to Claims 63-69, for the reasons stated above, the claims are not obvious over the prior art.

The Examiner has rejected Claims 56-70 as being anticipated or obvious over Holley in view of Palmer.

The Examiner states that Holley teaches a method of determining moisture content of soil and/or seed comprising: placing mulch and seed together on soil (Claim 1); **(Nowhere in Holly is it disclosed a method of determining moisture**

content of the surface of the soil and/or seed) said seed consisting essentially of grass, vegetable and/or flour seed (Col. 2, ln. 11); said color coming from a pigment and/or dye in said mulch product (Col. 2, ln. 39); said mulch product comprising a fiber, cellulose, clay, loam, sand, and/or combination of same (Claim 1); said moisture content of said mulch has a relationship to said moisture content of said soil and/or seed (Col. 1, lines 11-12) **(This section states "but keeping the seed uniformly moistened is even more of a problem." In this section nor anywhere in Holley, is it taught that the moisture content of the mulch has a relationship to moisture content of soil and/or seed)** (regarding claims 56 and 70 plants are inherently in the soil, applicant hasn't claimed the boundaries of the soil nor explicitly that the mulch is covering the soil). **(Applicant has amended the claims to state that the mulch is placed on the soil where the seeds are located).**

The method steps of determining moisture content of said soil and/or seed by color intensity of said mulch product; changing color intensity of said mulch product when moisture is removed from said mulch product; changing color intensity of said mulch product when moisture is added to said mulch product; adjusting moisture level of said soil and/or seed in response to said color intensity of said mulch product are a combination of inherent physical properties and general knowledge of one of skill in the art. **(Nowhere does Holey teach or disclose that the mulch changes color when moisture is added or removed. Further, nowhere is it taught by Holley to adjust moisture level of soil and/or seed in response to color intensity).** Dry and wet substances inherently exhibit different color intensities. **(A glass has the**

same color intensity wet or dry. With regards to mulches, Encap has shown to the Examiner at the previous interview mulches that do not change color intensities wet or dry. Therefore, this statement is incorrect). It is old and notoriously well-known general knowledge of one of skill in the art that seeds and plants need water for healthy development/growth and that it is known when the are around the plant, i.e., surrounding surfaces, appear dry they need water. **(Encap has amended the claims regarding the need for water for seeds which is different then plants).**

Alternatively, Holley is silent on explicitly teaching determining moisture content of said soil and/or seed by color intensity of said mulch product, changing color intensity of said mulch product when moisture is removed from said mulch product, changing color intensity of said mulch product when moisture is added to said mulch product, adjusting moisture level of said soil and/or seed in response to said color intensity of said mulch product. However, Palmer teaches general knowledge of one of skill that it is known to dye paper with a moisture indicating dye to prevent over and under watering as a visual indicator (Palmer col. 2, lines 57-72, and col. 1 lines 40-45). It would have been obvious to modify Holley with Palmer since the modification is merely the selection of a known alternate dye, the simple substitution of one known element for another. Palmer also is a showing of general knowledge of one of skill that is known to utilize the darkening/change in color intensity as an indicator of soil moisture content (Palmer col. 1 lines 40-44). **(There is no reason to combine the references. There is nothing in Holley to state that the green color would**

change when water is added, or that Holley would want it to change. There is no reason to use an alternate dye, which according to Palmer changes to pink or blue, Holley needs a green color, the color of grass. Therefore, there is no reason to use an alternate dye).

Mr. Krysiak has read the cited prior art of the Holley patent in view of Palmer and did not find them to be material alone or in combination, to render the claims obvious. (Krysiak Para 26)

Palmer is in the same field as Emalfarb in that it teaches a means for indicating moisture **below** the soil surface for the health of **plants** via the use of a **wick**. Palmer teaches the use of a wick to determine amount of moisture under the surface of the soil. (col. 1 lines 12, 24-25, 43, 55; col. 2 lines 16-17), indicating when a plant needs water (col. 1 lines 12, 18, 27) whereby a wick element is used to bring moisture out of the soil (col. 1 lines 55-56) convey moisture from one place to another (col. 2 lines 24-27). Palmer requires the addition of a moisture indicating element that is isolated from the wick so that it can indicate the amount of moisture in the air space, rather than of the wick (col. 2 lines 47-51). (Krysiak Para 27)

Holley teaches large, moisture holding pellets or briquettes comprised of blended seed and finely pulverized paper along with fertilizer (col. 1 lines 24-27) that are applied to soil. Holley states that said pellets/briquettes are colored by a green dye (**same color as grass**) (col. 2 line 39). (Krysiak Para 28)

Palmer does not teach the importance of moisture at the surface of the soil; the care of the seeds in a seed bed; or the use of a mulch product as an indicator of when to water, all of which are claimed in Encap's '076 application. In addition, Holley does

not teach the use of color to be an indicator of soil moisture at the surface of the soil; or a product that changes color; or the relation between surface moisture of the soil, color of mulch product and their impact on seed growth/care. (Krysiak Para 29)

Therefore, Spittle in view of Emalfarb and Holley, and Holley in view of Palmer do not make obvious the claims of the '076 patent application. (Krysiak Para 30)

The Examiner has stated that "Emalfarb is cited as a reference of the general knowledge of one of ordinary skill in the art to recognize that when a material changes color, e.g., darkens, water is sufficiently present and when the color is faded additional water adjustments are necessary. Emalfarb is a known teaching of utilizing inherent color changing properties of a certain material taught in Emalfarb to identify the moisture content for healthy plant growth. The Examiner states that it would have been obvious to one of ordinary skill in the art to modify the teachings of Spittle with the teaching of Emalfarb at the time of the invention since the modification is merely the application of a known technique to a known device already for improvements to yield predictable results." (page 3, line 18 to page 4, line 4 of the Office Action dated 1/9/12). **(Spittle teaches the use of a water absorbing mulch. It teaches nothing about recognizing any change in the color of mulch, fade, or darken, and therefore, cannot teach when water adjustments are necessary. The combination of Emalfarb, does not teach adding a material, changing color, or adjusting water content).**

Encap's 076 application realized such properties in mulch were not recognized or appreciated for their abilities to determine moisture levels at the soil surface, as noted

above, in caring for seeds in a seed bed. Therefore Encap believes that the claims of the '076 patent application are unique and novel. (Krysiak Para 31)

Further, with regards to the obviousness of the claims, applicant believes there are secondary considerations which weigh in favor of non-obviousness.

Mr. Krysiak believes that there was a long felt need for what is claimed in the '076 patent application. (Krysiak Para 32)

An adequate water supply is a primary environmental factor influencing germination of seeds in a seed bed (page 520, Turfgrass Science and Culture by James Beard, Prentice Hall, 1973). (Krysiak Para 33)

Since the early inception of seed bed mulch and combination mulch/seed products sold in the lawn and garden market, industry leaders such as the Scotts Miracle-Gro Company, Pennington, Barenbrug, PennMulch, Amturf, and Profile Products sold multi-millions of dollars in products. These products include the “then leading” combination product by Scotts called PatchMaster. These mulch and combination products contained no visual indicator on knowing when, and how much to water a seed bed at the top surface of the soil. Rather, their focus was on a mulch product that holds more and more water at the soil surface. The companies secured patents for their various mulch and combination products to secure their spot as a better seed-cover product. The seed companies also spent countless research and development dollars on how to create the next best seed genetically to attempt to address environmental conditions that challenge seed growth. (Krysiak Para 34)

Encap's '076 invention recognized the important role that the user plays in seeding success. Encap understood that the user would respond to a visual indicator

(color change), to help them overcome their own lack of performance in watering seed beds. (Krysiak Para 35)

After Encap's '076 invention, the Scotts Miracle-Gro Company, the industry and category leader, proclaimed in a national advertising campaign that they learned "Half of all grass seed users have told us that they have not been successful in getting grass to grow because they: forgot to water, didn't water frequently enough, or didn't water enough." (video: Turf Builder Grass Seed-not just any grass seed). Another Scotts video declared, "I discovered the problem of growing grass seed-is me. I am a grass seed failure. Well, I forgot to water, and the seed dries out. And once it dries it's dead. And once its dead." (video: Turf Builder Grass Seed Commercial. (Krysiak Para 36)

Encap also relies on copying as another secondary consideration to prove non-obviousness.

After the development of Encap's claimed '076 invention and related products in the national lawn and garden market, competitors recognized and appreciated the innovation in Encap's claimed invention and created, for the first time, copy-cat products with market-changing results and success. (Krysiak Para 37)

Encap's claimed "when to water" invention is now the standard used and marketed by the major players in the lawn and garden industry. The Scotts Miracle-Gro company considers their EZ Seed product, which features Encap's claimed technology, their most innovative product launch in the history of the company. (Krysiak Para 38)

Scotts' video entitled, "3 steps to seeding success with Scotts EZ Seed" calls EZ Seed a revolutionary product and states, "EZ Seed" will tell you when it's time to water again. When the area turns light brown, its time to water."

(<http://www.scotts.com/smg/learn/video/videoPage.jsp?detailId=16300034&subNavId=16900004&navId=16900002&parentId=100006>). (Krysiak Para 39)

In another Scotts video entitled "Grass Seed Success with Scotts Turf Builder EZ Seed", Scotts states, "EZ Seed will tell you what it needs. When the mix lightens, it is time to water again. The result-thick, long lasting beautiful grass.

(<http://www.youtube.com/watch?v=Cch2xtGy5P8>). (Krysiak Para 40)

In another video from Scotts entitled, "How to use Scotts turf Builder EZ Seed", Scotts states, "Oh, look at how dark that is getting (referring to the mulch color when water is applied to the soil). Yes. So that is going to let me know when I have enough water on it? Yes. As when it starts to dry out, it will turn lighter-that is an indication you need to water it again".

(<http://www.scotts.com/smg/learn/video/videoPage.jsp?detailId=14800042>) (Krysiak Para 41)

In yet another Scotts video featuring Patch Magic combination seed/mulch product, Scotts states, "As Patch Magic dries, it will turn lighter brown so you will know exactly when to water next."

(<http://www.bing.com/videos/search?q=miracle+gro+patch+magic&view=detail&mid=44E267DD24974A79FA2A44E267DD24974A79FA2A&first=0&adlt=strict>). (Krysiak Para 42)

Further, as to copying, the Scotts Miracle Gro company, while discussing their strategic plan in their 10-K on 11-24-09, indicated "we believe this strategy resulted in the successful launch of several new products in 2009, including Turf builder Water Smart Grass Seed and EZ Seed Grass Seed." Similarly, the Scotts website reports,

Product innovation at Scotts Miracle Gro begins with a thorough understanding of consumers' emerging interests, lawn and garden habits and unmet needs. That leads to a robust development process that combines those insights with the most advanced R&D capabilities in the business to create products that are simple, sustainable and significant to our customers. In FY 2011, our spending on research and development was \$50.0 million. Our history is full of examples of where this approach has led to breakthrough products that have changed the category and excited consumers from innovative formula developments to advanced applicator technology."

(<http://www.grogood.com/CorporateResponsibilityReport/ProductResponsibility>). The innovative products pictured on this website included the Scotts EZ Seed Product.

(Krysiak Para 43)

Encap's discovery of the use of a colored mulch product applied to the surface of soil, along with seed, wherein the mulch product changes color in concert with moisture of surface of said soil is industry changing technology. This technology addresses the long felt need (identified by the dominant player in the industry) and successfully created a following of "copy-cat" type products that have revolutionized the mulch and combination product category. (Krysiak Para 44)

With regard to the Applicants' prior argument regarding that the invention is a new use, the Examiner states that this is not persuasive because a new use has to be discovered and not merely an inherent property. **(The Examiner argues that the ability to change color intensity is inherent. However, as stated above this is not true, and with some mulches, the mulch is specifically designed not to change color intensity. The Examiner focuses on the fact that wet soil is**

darker than dry soil. However, what was not known prior to applicant's invention is the relationship between the moisture level in the mulch and the moisture level at the top of the soil and/or seed bed. As shown by the statements from Scotts, the largest manufacturer in the industry, the was a major innovation, and not something that was inherent).

Applicant believes the application is in condition for allowance.

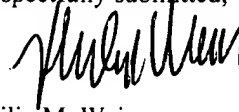
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